

## Appendix 10: Practice guidelines for positioning

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All infants positioned according to developmental care should meet the following principles:

- Neutral flexed position
- Midline containment
- 3-D boundaries

Positioning guidelines for use regardless of position (supine / prone or side lying):

1. The head is kept in a neutral position to facilitate an open airway
2. Shoulders should be rounded with a curved back
3. Elbows should be flexed
4. Hands should be positioned near mouth
5. Hips and knees should be flexed
6. Knees should be kept together
7. Ankles should be kept together
8. Feet should be flexed and supported by a boundary
9. Provide boundaries in a circle around the whole infant including the head
10. Boundaries should touch the baby to provide support but should not be restrictive or limit movement
11. A gel pillow or substitute can be used to relieve pressure of the infant's head, thereby preventing cranial moulding
12. Positioning aids, linen, prone rolls and other substitutes can be used for positioning of the infant
13. The infant should be observed before, during and after positioning changes for signs of physiological and behavioural stress cues. These observations should be documented.
14. All interventions and observations should be recorded
15. These guidelines should be adjusted for the patient's individual needs regarding their current medical condition e.g. a patient with abdominal distension would be positioned in such a way as to reduce additional pressure on the abdomen

Positioning guidelines for Kangaroo care:

1. Intermittent kangaroo care should take place for a minimum time period of 30 minutes
2. Kangaroo care can be initiated when the infant is stable excluding the following: umbilical lines, peripheral arterial lines, physiologically unstable infants, underwater drainage and infants ventilated with non-flexible tubing.
3. The infant should be observed before, during and after positioning changes for signs of physiological and behavioural stress cues. These observations should be documented.
4. The infant wearing only a diaper, is placed skin-to-skin on the bare chest of the caregiver in an upright position
5. The infant should be maintained in a flexed position during this transfer
6. The caregiver should be able to observe the infant's breathing. If the infant is not monitored electronically education should be provided to make the caregiver more aware of the infant's breathing efforts
7. The infant's feet should be supported with a boundary or hand from the caregiver
8. The nurse should stay near to the caregiver during the kangaroo care period
9. The infant and caregiver should be covered with a blanket to maintain thermoregulation
10. Once the kangaroo care time period is complete, return the infant to the incubator and position according to the above mentioned guidelines
11. All interventions and observations should be recorded

\_\_\_\_\_  
Developmental Care Committee Member

\_\_\_\_\_  
Date of Approval

\_\_\_\_\_  
NICU Unit Manager

\_\_\_\_\_  
Date of Approval

\_\_\_\_\_  
Neonatology Consultant

\_\_\_\_\_  
Date of Approval

\_\_\_\_\_  
Nursing Services Manager

\_\_\_\_\_  
Date of Approval

Date of Implementation: October 2004

Compiled by Angie Hennessy: September 2004

Date of Revision: September 2005

## Appendix 11: Orientation information sheet

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This Developmental Care Implementation Project is a multidisciplinary approach. Due to the frequent rotation of staff in this unit, this orientation sheet has been provided. Developmental care is an approach that alters the preterm and sick infants' environment in order to simulate the uterine environment and reduce negative neurological outcomes and developmental delays. The Developmental care approach includes the following principles: positioning, light and noise reduction, correct handling and touch, swaddled bath and weighing, individualised care, non-nutritive sucking, positive smell stimuli, pain management and a family-centred approach. If additional information is needed, please do not hesitate to contact me. Angie Hennessy 082 371 5104.

- Nests are used for infant positioning. Nest sizes (XS, S, M & L) are specific to infant weight. The correct nest size should be taken for the infant's weight, e.g. infant < 1000grams needs a XS nest.
- If blood is spilt on them, please apply saline on to the stain and rub. This allows the blood to wash out easier.
- Please use linen savers when performing invasive procedures to prevent blood spills on nests. These are kept in a box near the blood collection equipment in ICU.
- Badly soiled nests should be rinsed and dried before putting them in the washing bin.
- Please try not to get blood on the blankets on top of the incubators. Only a few blankets were donated and they tend to stain easily.
- Two people should be available for invasive procedures, one to do the procedure and the other to hold and contain the infant. Containment can be done by using hands or a blanket. Only the limb needed is left exposed.
- When spraying alcohol hand rub on, please allow it to dry before touching the infant, and open webcols away from the babies face. These smells are very strong for their olfactory system.
- A dummy should be provided with an administered dose of sucrose solution (0.1-0.2ml of a 24% sucrose solution 4-6 hrly) for any painful procedure done on the infant.

- The infant should be positioning in the fetal position with an open airway either left or right sidelying, or prone and supine. The following principles are used to maintain the correct position: flexion, 3-D containment and midline orientation.
- Please reposition infants once you have worked with the patient. This includes invasive procedures, doctors' rounds, physical examinations, blood drawing routines & routine nursing care.
- No 'preemie-flips' are to be done where the infant is turned 180° rapidly. Position changes should be slow. Try and use palmer grasp as opposed to finger tip pressure.
- No stroking / tickling / rubbing of the infant's skin should take place. This causes pain & irritation.
- Please try to work with the infant when he/she is awake or at routine care times. Activities should be clustered to one time, so as to give the infant longer periods of rest and sleep.
- Nap times have been set in the unit to allow periods of uninterrupted sleep for the infant. If possible, please try not to disturb the infant during these nap times between 10h00 – 11h00 in the morning and 15h30 – 16h30 in the afternoon.
- Lights should be turned off in all care areas after routine care is delivered. Incubator tops should be covered with a blanket to reduce light for the infant, and curtains should be kept closed to reduce the amount of natural light entering the unit.
- Staff generated noise, e.g.  **talking should be reduced** as far as possible.
- Bubble wrap placed on top of incubators reduced noise vibrations entering the incubator. The bubble surface should face towards the incubator. Please **do not** pop the bubbles.
- Orientation of medical students to the unit situation is the responsibility of the doctors.
- Involve & encourage parents to participate in their infant's care as far as possible and explain medical conditions in understandable language.
- The doctor responsible for the ICU care area is required to attend a weekly developmental care meeting held in the unit on Tuesday afternoons at 15h00. The minutes and agendas of previous meetings are kept on the doctors' rack in a green file under the x-ray box.

Appendix 12: Photographs of developmental care wall



Appendix 13: Developmental care newsletter

April 2005

# Developmental Care Newsletter

Developmental Care Implementation Project

Volume 2, Issue 2

**Research Highlights:**

- Woolworths Castle Walk fundraiser
- Re-enforced the principles of individualized care
- Implemented Non-nutritive sucking
- Avent cups donated to store pacifiers at each patient's bed!
- Pain management is the next principles to be implemented in May
- Family-centred care in June
- Practice makes perfect for July and August!

**Inside this issue:**

Thanks all round! 1

A note from our new consultant 1

Incentive Winners! 2

Fundraising at Woolworths Castle Walk 2

Researcher's Note 2

**Thanks all round!— a participant**

I would like to convey my special thanks to Angie who chose to utilize our unit for her project.

It takes guts and one has to be really prepared to work hard to choose our unit for such a project. It is a big unit and it has many challenges with a bed occupancy that reaches 38 patients at times.

Thanks again to the Dayton's Children's Medical Centre, Ohio which donated the nests for correct positioning. Again many thanks to the Good Samaritan Hospital in Cincinnati, Ohio which donated a lot of baby clothes, blankets and pacifiers which we can use for our needy patients.

I felt so proud at the Midwifery Symposium held by hospital to

hear that this study is the first of its kind to be done in South Africa. It has been 8 months since the project was launched and we are already seeing the progress.



rect positioning and swaddled bathing.

We, the neonatal staff, are prepared and are willing to spread the concept of developmental care to other hospitals especially through personnel that work agency overtime in our hospital. They then take the message back to their own units.

We can not wait to proceed to other principles!

A participant

For example: the number of stress cues experienced by most babies have lessened due to cor-

**A Note from our new consultant— a participant**

I was pleasantly surprised at the high standard of developmental care. Having worked at PAH in the NICU a couple of years ago, the change is immediately noticeable.

I got used to incorporating developmental care into the routine care in Australia, and I am very happy that it is already being implemented here.

This will contribute in a big way to improving our quality of care in our unit. The smaller the babies we treat, the better we need to become at maintaining all facets of their care, and that includes developmental care.

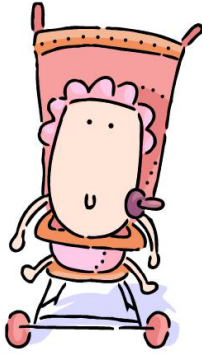
A participant



## Developmental Care Newsletter

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### Incentive Winners!



Well done to our incentive winners. The list is getting longer every time!! I am very proud of the changes you are making in the unit!

- Participants' names

*"Nothing great was ever achieved without enthusiasm"*

*Ralph Waldo Emerson*

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### Fundraising at Woolworths Castle Walk

A fundraiser was held at Woolworths Castle Walk to raise funds for the laundry appliances. The day was definitely loads of fun with face painting and a jumping castle for the kids, and tasty boerewors rolls for sale.

A total of R1500.00 was raised through boerewors roll sales. When adding the total

from the previous fundraising efforts a total of R3700.00 was made. Woolworths Head Office has added an additional R3000.00 to that amount! We now have enough money to buy the laundry appliances for our unit!

Money was collected in tins as well. This collection raised

about R1220.00. The jumping castle was paid out of that money and the remained was used to buy 6 new mobile plastic baths and 6 plastic covered changing mats. These items improve the chaos of bathing days and add a colourful change in our working environment.

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### Researcher's Note



It is hard to believe that this Developmental Care research project has already been in progress for 8 months!

We have come very far in a short period of time and I thank you of your efforts.

We only have two new principles to implement pain management and family-centred care.

The implementation phase is only complete at the end of August, so for July and August we will be practicing all of the principles together.

During the last two months we have re-enforced the principle of individualised care and introduced non-nutritive sucking.

The unit has given us many

challenges over the past few months — I thank you all for your hard work and dedication to maintain developmental care practices among the overcrowded unit and severe staff shortages faced!

We are nearly there!

Angie Hennessy

Appendix 14: Example of in-service signage

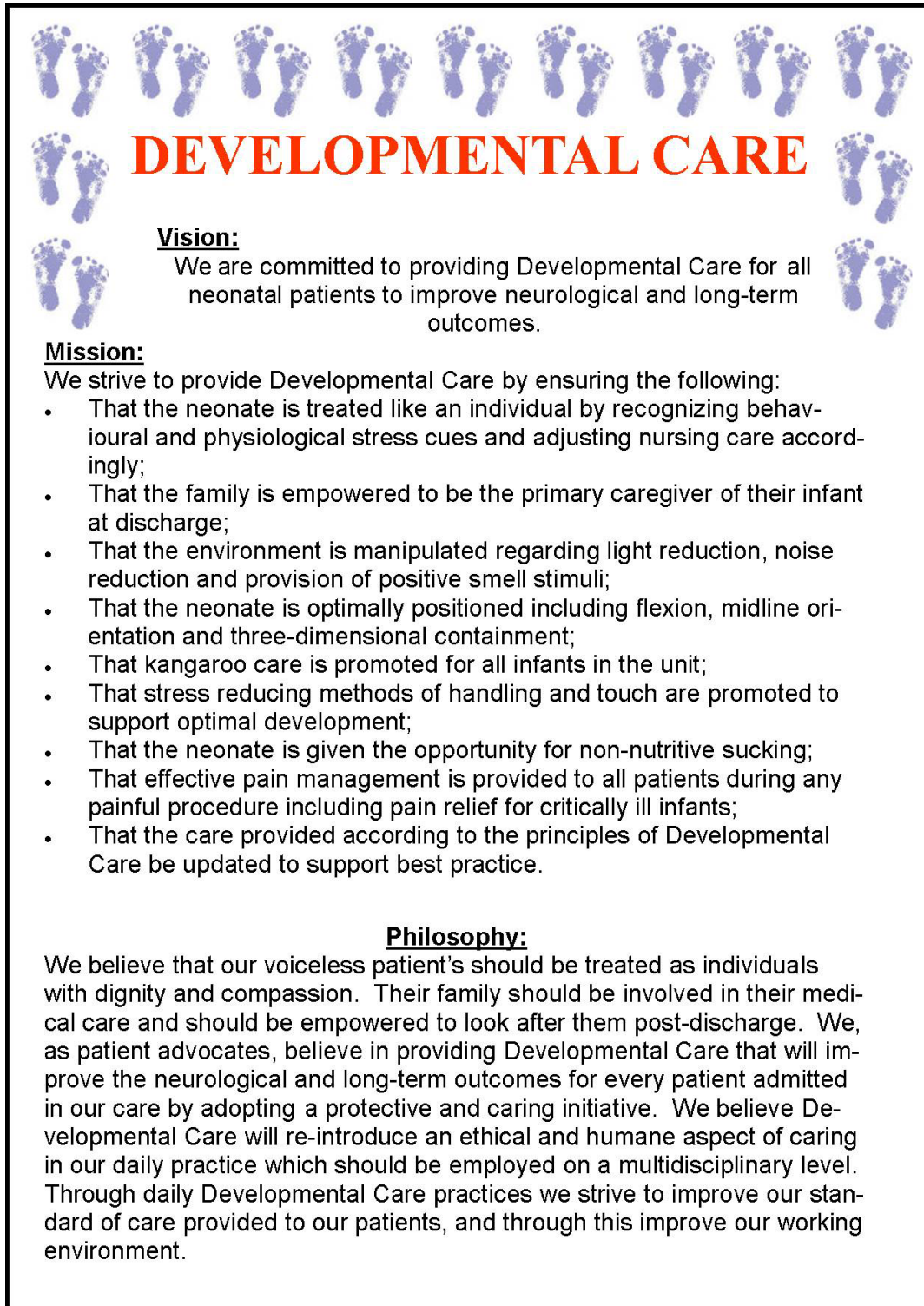
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# Swaddled Bathing





## Appendix 15: New vision, mission and philosophy



**DEVELOPMENTAL CARE**

**Vision:**  
We are committed to providing Developmental Care for all neonatal patients to improve neurological and long-term outcomes.

**Mission:**  
We strive to provide Developmental Care by ensuring the following:

- That the neonate is treated like an individual by recognizing behavioural and physiological stress cues and adjusting nursing care accordingly;
- That the family is empowered to be the primary caregiver of their infant at discharge;
- That the environment is manipulated regarding light reduction, noise reduction and provision of positive smell stimuli;
- That the neonate is optimally positioned including flexion, midline orientation and three-dimensional containment;
- That kangaroo care is promoted for all infants in the unit;
- That stress reducing methods of handling and touch are promoted to support optimal development;
- That the neonate is given the opportunity for non-nutritive sucking;
- That effective pain management is provided to all patients during any painful procedure including pain relief for critically ill infants;
- That the care provided according to the principles of Developmental Care be updated to support best practice.

**Philosophy:**  
We believe that our voiceless patient's should be treated as individuals with dignity and compassion. Their family should be involved in their medical care and should be empowered to look after them post-discharge. We, as patient advocates, believe in providing Developmental Care that will improve the neurological and long-term outcomes for every patient admitted in our care by adopting a protective and caring initiative. We believe Developmental Care will re-introduce an ethical and humane aspect of caring in our daily practice which should be employed on a multidisciplinary level. Through daily Developmental Care practices we strive to improve our standard of care provided to our patients, and through this improve our working environment.

## Appendix 16: Questionnaire 2

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Medical Staff

Nursing Staff

Allied Health

Non-medical Support Services

This information will be kept anonymous and confidential

### Implementation progress evaluation questions

6. Do you think that developmental care is being implemented successfully in your unit so far?

Yes

No

Unsure

7. How are you experiencing the changes in the unit?

Positive

Negative

Both positive & negative

3. If POSITIVE, what are your positive experiences?

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4. If NEGATIVE, what are your negative experiences?

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5. What is the impact of developmental care on you?

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6. What is the visible impact of developmental care on the baby and family?

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7. What have you learned so far while implementing developmental care?

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8. What additional needs not being attended to?

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Thank you of taking the time to complete this questionnaire. Your participation is much appreciated.

Angie Hennessy

## Appendix 17: Positioning checklist evaluation

| Positioning Checklist |   | YES | NO | Not applicable |
|-----------------------|---|-----|----|----------------|
| 1                     | Head in a neutral position to facilitate an open airway   |     |    |                |
| 2                     | Shoulders rounded with a curved back  |     |    |                |
| 3                     | Elbows flexed   |     |    |                |
| 4                     | Hands positioned near mouth   |     |    |                |
| 5                     | Hips and knees flexed   |     |    |                |
| 6                     | Knees kept together   |     |    |                |
| 7                     | Ankles kept together  |     |    |                |
| 8                     | Feet flexed & supported by a boundary   |     |    |                |
| 9                     | Boundaries in a circle around the whole infant including the head   |     |    |                |
| 10                    | Boundaries touch the baby to provide support but are not restrictive or limit movement                      |     |    |                |
| 11                    | Gel pillow or substitute used to relieve pressure of the infant's head (if applicable)                      |     |    |                |
| 12                    | Positioning aids, linen, prone rolls and other substitutes used for positioning                             |     |    |                |
| 13                    | Infant observed before, during and after positioning changes for stress cues with evidence of documentation |     |    |                |
| 14                    | All interventions and observations recorded   |     |    |                |
| 15                    | Guidelines adjusted to patient's individual needs regarding their current medical condition                 |     |    |                |

## Appendix 18: Focus group interview questions

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1. What motivates you to practice and continue with developmental care daily?
2. What inhibits or prevents you from practicing developmental care daily?
3. According to your experience, how can Family-centred care be implemented within these constraints?

## Appendix 19: Focus group interview informed consent document

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### **TITLE**

***Facilitation of developmental care for high-risk neonates: an intervention study***

### **INTRODUCTION**

You are invited to volunteer as a participant in this research study. This information leaflet is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this leaflet, do not hesitate to ask the researcher. You should not agree to take part unless you are completely happy about what is expected of you.

The purpose of this part of the study is to conclude the intervention and evaluation phase of the implementation of Developmental Care that has been taking place in the Neonatal unit over the past year.

You are requested to participate in an interview of approximately 60 minutes. To be able to analyse the interview, it will be recorded on tape. The transcription of the focus group will be done anonymously with no referral to any participant's names, and it will be kept in a safe place.

*The following question will form the structure of the interview:*

- What motivates you to practice and continue with Developmental Care daily?
- What inhibits / prevents you from practising Developmental Care daily?
- According to your experience, how can Family-centred care be implemented within these constraints?

This study protocol was submitted to the Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences. The committee has granted written approval (21/2004). The study supervisors are Dr SJC van der Walt (012 3541784) and Mrs C

Maree (012 3542127). You are welcome to contact them should you need any more information.

Your participation in this study is entirely voluntary and you can refuse to participate or stop at any time without stating any reason. Your withdrawal will not be held against you. Please do not use any names by which you or any other person or institution can be identified. All information obtained during the course of the interview is strictly confidential. As all data collected remains confidential and anonymous, **please note** that once data has been transcribed and analysed, tracing of information to a particular participant will be unattainable and recall of consent at this stage will not be possible. Data that may be reported in scientific journals will not include any information that identifies you as a participant in this study.

#### **INFORMED CONSENT**

I hereby confirm that the researcher, Angie Hennessy has informed me about the nature and conduct of the study. I have also received, read and understood the above written information (Participant Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details will be anonymously processed into the study report. I may, at any stage, without prejudice, withdraw my consent and participation in the study. I have had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study. I am aware that I may request debriefing should traumatic experiences arise during the interview.

Participant's name \_\_\_\_\_ (Please print)

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

Witness's name: \_\_\_\_\_

Witness's signature: \_\_\_\_\_

Date: \_\_\_\_\_

I, Angie Hennessy, hereby confirm that the above participant has been informed fully about the nature, conduct and risks of the above study.

---

Angie Hennessy

---

Date



## **Appendix 20: Parents informed consent document for photographs**

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### **TITLE**

*Facilitation of developmental care for high-risk neonates: an intervention study*

### **INTRODUCTION**

As the parent of your child, you are invited to include your infant in this research study. This information leaflet will help you decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this leaflet, do not hesitate to ask the researcher. You should not agree to take part unless you are completely happy about what is expected of you and your infant.

### **WHAT IS THE PURPOSE OF THIS STUDY?**

Developmental care is a method of caring for the preterm and sick infant, where the environment is adapted in order to reduce stress of the infant. If these infants experience less stress, their short-term and long-term outcomes are improved. Developmental care will be implemented into the whole unit where your infant is hospitalised. No adverse effects of developmental care have been reported to date. The purpose of the study is to provide an evidence-based model for implementation of developmental care in South African neonatal intensive care.

### **WHAT IS EXPECTED OF YOU DURING THIS STUDY?**

As a parent, you will be asked permission or to consent to the researcher taking photographs of your infant. If consent is granted, photographs may be taken in the NICU to document research findings. The photographs may also be used as examples of DSC implementation for hospital staff, parents, and presentation of the above mentioned research including possible publications. As a parent, you may choose to have the facial features of your infant masked or covered in order to maintain confidentiality or for the facial features to remain uncovered. The photographs will be kept in a safe place and

confidentiality will be ensured at all times. Your infant's name will not be mentioned in the research documentation and his/her particulars will remain anonymous.

#### **HAS THE STUDY RECEIVED ETHICAL APPROVAL?**

This study protocol has been approved by the Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences. The study is also fully supported by the Department of Nursing Science, University of Pretoria.

#### **WHAT ARE YOUR RIGHTS AS A PARTICIPANT IN THIS STUDY?**

Your participation in this study is entirely voluntary and you can refuse to participate or stop at any time without stating any reason. Your withdrawal will involve no penalty or loss of benefits.

#### **MAY ANY OF THESE STUDY PROCEDURES RESULT IN DISCOMFORT OR INCONVENIENCE?**

There will be no discomfort or inconvenience involved during the photography as these will be strictly observational. Your infant will not be handled or positioned in a particular manner for the photographs.

#### **CONFIDENTIALITY**

All photographs obtained during the course of this study may be used in evaluation and published in scientific journals or in educational materials, but will not include any information that identifies you or your infant as a participant in this study.

#### **WHAT ARE THE RISKS INVOLVED IN THIS TRIAL?**

There are no risks involved in participation in this study. Developmental care has already proven to be an effective care approach for the neonate. Developmental care has no reported detrimental effects.

**SOURCE OF ADDITIONAL INFORMATION**

If you have any questions during this study, please do not hesitate to approach the researcher.

Researcher: Ms A.C. Hennessy 082 371 5104

Supervisor: Dr S.J.C. van der Walt 012 354 2125

**INFORMED CONSENT**

I hereby confirm that I have been informed by the researcher, Ms A.C. Hennessy about the nature, conduct, benefits and risks of the study. I have also received, read and understood the above written information (Parent Information Leaflet and Informed Consent) regarding the study.

I am aware that the results of the study, including personal details and photographs taken will be anonymously processed into the research report for possible publication in scientific journals and use in training programmes. I choose to have the facial features of my infant **\*covered / \*to remain uncovered.**

I may, at any stage, without prejudice, withdraw my consent and participation in the study. I have had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

Participant's name ..... (Please print)

Participant's signature ..... Date .....

Witness's name ..... (Please print)

Witness's signature ..... Date .....

**\* Please delete what is not applicable.**

I, Ms A.C. Hennessy herewith confirm that the above participant has been informed fully about the nature, conduct and risks of the above study.

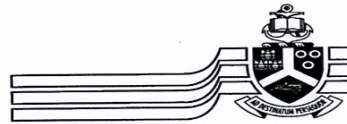
Researcher's name ..... (Please print)

Researcher's signature ..... Date .....

Appendix 21: Ethical clearance from the University of Pretoria

354 1682

FWA Nr. 0000 2567  
IRB Nr. 0000 2235



University of Pretoria  
Faculty of Health Sciences Research Ethics Committee  
University of Pretoria  
Date: 29/04/2004

Soutpansberg Road  
MRC-Building  
Room 2 - 19

Private Bag x 385  
Pretoria  
0001

|                     |  |
|---------------------|--|
| <b>Number</b>       | : 21/2004  |
| <b>Title</b>        | : Developmentally Supportive Care: Implementation in a South African Public Neonatal Intensive Care Unit   |
| <b>Investigator</b> | : Ms A C Hennessy; Nursing / Paediatric Department; Pretoria Academic Hospital; University of Pretoria. <a href="mailto:angiech@iafrica.com">angiech@iafrica.com</a> |
| <b>Sponsor</b>      | : None   |

**This Protocol has been considered by the Faculty of Health Sciences Research Ethics Committee, University of Pretoria on 28/04/2004 and found to be acceptable.**

|                       |  |
|-----------------------|--|
| Prof P Carstens       | BLC LLB LLD (Pret) Faculty of Law  |
| Prof S.V. Grey        | (female) BSc (Hons); MSc; DSc: Deputy Dean   |
| Prof V.O.L. Karusseit | MBChB; MFGP (SA); M.Med (Chir); FCS (SA): Surgeon                                    |
| Dr M E Kenoshi        | MB,ChB; DTM & H (Wits); C.E.O. of the Pretoria Academic Hospital                     |
| Prof M Kruger         | (female) MB.ChB.(Pret); Mmed.Paed.(Pret); PhD. (Leuven)                              |
| Dr N K Likibi         | MB.BCh.; Med.Adviser (Gauteng Dept.of Health)  |
| Dr F M Mulaudzi       | (female) Department of Nursing,  |
| *Miss B Mullins       | (female) BscHons; Teachers Diploma;  |
| *Snr Sr J. Phatoli    | (female) BCur (Et.Al) Senior Nursing-Sister  |
| *Prof H.W. Pretorius  | MBChB; M.Med (Psych) MD: Psychiatrist  |
| *Reverent P Richards  | B.Th. (UNISA), M.Sc. (Applied Biology) (Knights), M.Sc (Med) (Wits), TechRMS, DipRMS |
| *Dr L Schoeman        | (female) Bpharm, BA Hons (Psy), PhD  |
| Dr C F Slabber        | BSc (Med) MB BCh, FCP (SA) Acting Head; Dept Medical Oncology                        |
| Prof J.R. Snyman      | MBChB, M.Pharm.Med: MD: Pharmacologist   |
| Dr R Sommers          | (female) MBChB; M.Med (Int); MPhar.Med;  |
| Prof TJP Swart        | BChD, MSc (Odont), MChD (Oral Path) Senior Specialist; Oral Pathology                |
| Prof C W van Staden   | MBChB; Mmed (Psych); MD; FTCL; UPLM; Dept of Psychiatry                              |

**DR R SOMMERS;** MBChB; M.Med (Int); MPhar.Med.  
SECRETARIAT of the Faculty of Health Sciences Research Ethics Committee - University of Pretoria

\* = Members attended the meeting on 28/04/2004.